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National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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Refer to:
OSB2001-0201-FEC

April 11, 2002

Mr. Lawrence C. Evans
Portland District, Corps of Engineers
CENWP-OP-GP (Monical)
P. O. Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation, Munsel Creek Water Pipeline Replacement Project,
Siuslaw River Basin, City of Florence, Lane County, Oregon (Corps No. 2001-00594)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) for the Munsel Creek Water Pipeline Replacement Project, Lane County, Oregon. NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*), or destroy or adversely modify critical habitat. Pursuant to section 7 of the ESA, NMFS has included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project. This Opinion also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR 600).

Please direct any questions regarding this letter to Robert Anderson of my staff in the Oregon Habitat Branch at 503.231.2226.

Sincerely,

for Michael R. Crouse

D. Robert Lohn
Regional Administrator



Endangered Species Act - Section 7
Consultation
and
Magnuson-Stevens Act
Essential Fish Habitat Consultation

Biological Opinion

Munsel Creek Water Pipeline Replacement Project,
Siuslaw River Basin, Lane County, Oregon

Agency: U.S. Army Corps of Engineers

Consultation Conducted by: National Marine Fisheries Service,
Northwest Region

Date Issued: April 11, 2002

Issued by: *Michael R. Crouse*

D. Robert Lohn
Regional Administrator

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TABLE OF CONTENTS

1. ENDANGERED SPECIES ACT	<u>1</u>
1.1 Background	<u>1</u>
1.2 Proposed Action	<u>1</u>
1.3 Biological Information and Critical Habitat	<u>2</u>
1.4 Evaluating Proposed Actions	<u>3</u>
1.4.1 Biological Requirements	<u>4</u>
1.4.2 Environmental Baseline	<u>4</u>
1.5 Analysis of Effects	<u>6</u>
1.5.1 Effects of Proposed Action	<u>6</u>
1.5.1.1 Water Quality	<u>6</u>
1.5.1.1.1 Temperature	<u>6</u>
1.5.1.1.2 Sediment	<u>6</u>
1.5.1.1.3 Chemical Contamination	<u>7</u>
1.5.1.2 Habitat Access	<u>7</u>
1.5.1.3 Fish Entrapment and Entrainment	<u>8</u>
1.5.2 Effects on Critical Habitat	<u>8</u>
1.5.3 Cumulative Effects	<u>8</u>
1.6 Conclusion	<u>8</u>
1.7 Reinitiation of Consultation	<u>9</u>
2. INCIDENTAL TAKE STATEMENT	<u>9</u>
2.1 Amount or Extent of Take	<u>9</u>
2.2 Reasonable and Prudent Measures	<u>10</u>
2.3 Terms and Conditions	<u>10</u>
3. MAGNUSON-STEVENSON ACT	<u>16</u>
3.1 Background	<u>16</u>
3.2 Magnuson-Stevens Fishery Conservation and Management Act	<u>16</u>
3.3 Identification of EFH	<u>17</u>
3.4 Proposed Actions	<u>18</u>
3.5 Effects of Proposed Action	<u>18</u>
3.6 Conclusion	<u>18</u>
3.7 EFH Conservation Recommendations	<u>18</u>
3.8 Statutory Response Requirement	<u>18</u>
3.9 Consultation Renewal	<u>18</u>
4. LITERATURE CITED	<u>19</u>

1. ENDANGERED SPECIES ACT

1.1 Background

On August 20, 2001, the National Marine Fisheries Service (NMFS) received a letter from the U.S. Army Corps of Engineers (Corps) requesting consultation pursuant to the Endangered Species Act (ESA) for the issuance of a permit under section 404 of the Clean Water Act to the City of Florence to replace a series waterlines crossing Munsel Creek, a tributary to the Siuslaw River, in Lane County, Oregon. A biological assessment (BA) was submitted with the letter describing the proposed action and potential effects that may result from project implementation. In the BA, the Corps determined that the proposed action was not likely to adversely affect Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*), an ESA-listed species. On September 7, 2001, the Corps revised the determination of effect indicating that after further review the proposed action was likely to adversely affect OC coho salmon and requested formal consultation.

This biological opinion (Opinion) considers the potential effects of the proposed action on OC coho salmon, which occur in the proposed action area. OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), critical habitat was designated on February 16, 2000 (65 FR 7764) and protective regulations were issued on July 10, 2000 (65 FR 42422). The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of OC coho salmon, or destroy or adversely modify designated critical habitat for this species. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

1.2 Proposed Action

The proposed action is issuance of a permit by the Corps under section 404 of the Clean Water Act to authorize replacement of three exposed pipelines with buried pipelines, and removal of a 48-inch corrugated metal pipe (CMP) culvert. Existing streambank materials (concrete and riprap) protecting the pipelines will be removed. The proposed action will require excavation of 15 cubic yards of riprap below the ordinary high water line (OHWL) and placement of 11 cubic yards of sand and gravel below the OHWL, disturbing 527 square feet of riparian area. Intakes for pumps used to de-water the work area will be screened to avoid entrainment of fish into the pump housing mechanism. During all phases of construction, any fish observed trapped within the work area will be netted and released downstream. All disturbed areas will be seeded and replanted with native vegetation.

The proposed work will take approximately two weeks to complete. All in-stream work is proposed to occur during the ODFW-recommended in-water work window, July 1 to September 15 (ODFW 2000).

The NMFS regards the best management practices (BMPs) identified in the biological assessment to be an integral component of the proposed action that are necessary to minimize adverse affects to OC coho salmon and their habitat.

1.3 Biological Information and Critical Habitat

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for freshets before entering rivers. In the Siuslaw River watershed, adults are believed to enter the river between September and mid-January with peak migration into the Siuslaw River occurring in October (Mullen 1981, as cited in Weitkamp et al. 1995). Spawning occurs from late October to late January with peak spawning generally occurring in mid-December (Weitkamp et al. 1995). Seaward migration of juveniles occurs during spring. Reports of outmigration timing vary from February through June (Rodgers et al. 1993, as cited in Weitkamp et al. 1995) to March into early July.

Long term trends of total pre-harvest abundance and spawner escapement show significant declining trends over the 50-year period of record for OC coho salmon ESU (Weitkamp et al. 1995).

Abundance of wild coho salmon spawners in Oregon coastal streams declined from about 1965 to roughly 1975 and has fluctuated at a low level since then (Nickelson et al. 1992). Spawning escapements for this ESU may be less than 5% of that in the early 1900s. Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson et al. 1992). Average spawner abundance has been relatively constant since the late 1970s, but pre-harvest abundance has declined. Average recruits-per-spawner may also be declining. The OC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp et al. 1995).

The level of both spawner escapement and pre-harvest abundance observed in 1999 was slightly improved from the record low levels observed in 1997 and 1998. Indices of adult recruits per spawner are available for the 1950-95 brood years. This index measures the overall survival of coastal coho from egg deposition to adulthood. These values range from eight to less than one (Jacobs et al. 2001)

Survival rates of coastal coho stocks have shown a steady decline over about the last 20 brood years. Spawner replacement failed to occur for the three most recent brood years. Estimates of the abundance of adult coho spawners that comprise OC coho salmon ESU are available back through 1990. Spawner abundance for this ESU has ranged from about 20,000 adults in 1990 to near 80,000 adults in 1996. In 1999, an estimated 47,400 adult OC coho salmon spawned (Jacobs et al. 2001).

Over the last three years (1999, 2000, and 2001) escapement data for Munsel Creek reported 64, 115, and 120 returning adults, respectively. In addition to the escapement data, an additional 150 adult coho salmon were observed in Munsel Lake in 2000. Data on native juvenile coho salmon fry-to-parr-to-smolt ratios and trends in Munsel Creek is not available.

Critical habitat for OC coho salmon is designated to include all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers accessible to listed coho salmon from coastal streams south of the Columbia River and north of Cape Blanco, Oregon. The adjacent riparian zone is defined as the physical environment that may influence

the following functions: Shade, sediment delivery to the stream, nutrient or chemical regulation, streambank stabilization, and the input of large woody debris/organic matter.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR 402. The NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. The NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult migration, spawning, and rearing of OC coho salmon under the existing environmental baseline. The NMFS' Essential Fish Habitat (EFH) analysis considers the effects of proposed actions on EFH and associated species and their life history stages, including cumulative effects and the magnitude of such effects.

1.4.1 Biological Requirements

The first step in the methods NMFS uses for applying the ESA to listed salmon is to define the biological requirements of the species most relevant to each consultation. The NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list OC coho salmon for ESA protection

(Weitkamp et al. 1995) and also considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful spawning, rearing and migration. The current status of OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened.

1.4.2 Environmental Baseline

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area (project area) involved in the proposed action (50 CFR 402.02). The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydrology, stream channel modification, increase in sedimentation and turbidity, displacement of rearing coho salmon, injury or killing of coho salmon, and pollutant discharge into Munsel Creek. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to aquatic and riparian habitat degradation. For this consultation, the action area includes Munsel Creek 150 feet upstream of the proposed action, downstream to its confluence with the Siuslaw River, and includes the channel migration zone (CMZ).

Munsel Creek is a perennial stream that drains Munsel, Ackerley, Clear and Collard Lakes. Land uses in the watershed include residential, urban, and forest. Much of the lower watershed in the action area consists of residential properties and a golf course. Upstream of the project site, the creek flows through a series of ponds and wetlands located in or near residential development. Munsel Creek has a predominantly sand substrate with few areas of gravel present. Downstream of the project site is a gravel bed created by the Salmon Trout Enhancement Project (STEP). Upstream of the project site is a STEP fish hatchery, which annually releases approximately 50,000 juvenile coho salmon into Munsel Lake.

Regulations implementing section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated effects of all proposed Federal projects in the action area that have undergone section 7 consultation, and the impacts of state and private actions that are contemporaneous with the consultation in progress.

The bulk of production for OC coho salmon ESU is skewed to its southern portion where the coastal lake systems (e.g., Tenmile, Tahkenitch, and Siltcoos Basins) and the Coos and Coquille

Rivers are more productive. Though the Siuslaw River basin is immediately north of the Siltcoos basin, the OC coho salmon population is depressed and the habitat in the action area is under-seeded. According to the BA, Munsel Creek did not historically support native runs of coho salmon due to the lack of gravel within the system. However, coho salmon spawning currently occurs in both upstream and downstream reaches of the creek. These fish are thought to be predominately of STEP hatchery origin, but the possibility exists that non-hatchery OC coho salmon may also be spawning and rearing in the system.

The Siuslaw River basin has approximately 459 spawning miles (Jacobs et al. 2001). Habitat degradation (including lack of large woody debris and channel downcutting) has contributed to declines in coho salmon runs in the watershed (BLM 1996). The BA used the NMFS Matrix of Pathways and Indicators (MPI) (NMFS 1996) to assess the current condition of coho salmon habitat in the Siuslaw River watershed. The following habitat indicators are either at risk or not properly functioning within the action area: Temperature, sediment/turbidity, large woody debris recruitment potential, pool frequency, off-channel habitat, refuge, flood plain connectivity, peak/base flows, increase in drainage network, and disturbance history.

The Siuslaw River is on the Oregon Department of Environmental Quality (ODEQ) 303(d) List of Water Quality Limited Water Bodies for temperature. The summer rearing temperature standard (64 °F) is regularly exceeded (63%) during summer flows from the mouth to the headwaters. Historic readings at Mapleton (approximately 15 miles upstream of the project site) show that the temperature exceedences occurred in 1980, 1982, and 1984 to 1992 with a maximum of 75.2 °F (ODEQ 2001). Munsel Creek does not appear on the 303(d) List, and according to the BA, most of the Creek has an intact riparian canopy.

The NMFS concludes that not all of the biological requirements of the subject species within the action area are being met under current conditions. Based on the best available information on the status of the affected species — population status, trends, and genetics, and the environmental baseline conditions within the action area — significant improvement in habitat conditions over those currently available under the environmental baseline is needed to meet the biological requirements for survival and recovery of these species.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The proposed action will disturb riparian and in-stream habitats in the short term and the long term. The proposed action may increase stream sediment load, elevate turbidity, introduce contaminants into the stream, alter and/or destabilize the streambed and streambanks, and may also reduce shade due to loss of riparian vegetation. OC coho salmon rearing in Munsel Creek may be injured or killed, or more likely displaced, by fish removal activities, and installation and removal of in-water work isolation structures.

The project also has the potential to enable other activities that may affect OC coho salmon or their designated critical habitat. Specifically, expansion of the City's well field and water

treatment facility may facilitate development leading to an increase in impervious surfaces, stormwater runoff, and adverse effects on streams in the Siuslaw River watershed.

1.5.1.1 Water Quality

1.5.1.1.1 Temperature

The NMFS does not expect that removal of riparian vegetation from a 527 square-foot area to significantly affect direct channel shading or increase water temperatures. Removal of riprap along the streambanks will reduce radiant heat transfer to the stream and allow vegetation to reestablish itself. Reduced radiant heat transfer and increased vegetation along the streambanks will reduce stream temperatures and provide habitat complexity. The disturbed area will be replanted with native vegetation. Functional shading will likely take 5-10 years to return.

1.5.1.1.2 Sediment

Open trenching across Munsel Creek will result in short-term sediment yield due to removal of riparian vegetation and modifications of the streambanks. Additionally, construction activities within the stream channel will disturb streambed materials, causing short-term increases in suspended sediments and turbidity. Increases in turbidity can adversely affect fish and filter-feeding macro-invertebrates. At moderate levels, turbidity has the potential to adversely affect primary and secondary productivity; at higher levels, turbidity may interfere with feeding and may injure and even kill both juvenile and adult fish (Spence et al. 1996). In spawning areas, deposited sediments may adversely affect coho salmon embryos and alevins by reducing dissolved oxygen concentrations in redds, increasing embeddedness of substrate interstices, or impairing emergence from the redds.

To minimize the potential for increases in turbidity and injury or mortality to fish, work will occur during the ODFW-recommended in-water work window (July 1 to September 15). During this window, river flows are typically low (1.5-2 cfs), fish presence is reduced, and rainfall is minimal. Isolation of the in-water work zone will allow a majority of the work to occur in the dry, thereby minimizing turbidity and adverse affects to OC coho salmon. The low probability of rainfall reduces the likelihood that sediment-laden water will be transported downstream of the project area. Based on data provided by the Western Regional Climate Center (2000) for Newport (approximately 48 miles south of Florence), average rainfall during the anticipated work period (August/September) represents 5.1% of the annual with less than a 10% probability of receiving 0.5 inches of rainfall on any given day. The precipitation probability increases greatly after September 30, as does the potential presence of returning adult coho salmon.

Furthermore, isolation of the work area from the flowing water and pumping flows around the work isolation area will eliminate most of the potential for sediment release during streambed excavation.

1.5.1.1.3 Chemical Contamination

As with all construction activities, accidental release of petrochemicals and toxic substances into the physical environment may occur. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain polycyclic aromatic hydrocarbons (PAHs) which can cause sublethal as well as lethal effects to salmonids and other aquatic organisms, depending upon concentration, duration of exposure, life-stage, and organism (Neff 1985).

To minimize the potential for chemical contamination, the Corps will ensure that: 1) All mechanized construction equipment will operate from top-of-bank, 2) staging areas, vehicle refueling locations, and maintenance areas will be located at upland sites at least 300 feet from the active channel, and 3) BMPs identified in the BA are fully implemented and maintained.

1.5.1.2 Habitat Access

Habitat access for juvenile coho salmon to both upstream and downstream areas will be disrupted for 3-4 days by in-water construction activities (installation and removal of in-water work isolation structures, fish removal, and trenching and pipeline replacement) depending on de-watering method. If flow is maintained with gravity, downstream access will continue during construction. If the stream is pumped around the construction zone, fish passage will be disrupted both upstream and downstream. Either de-watering method will not significantly affect behavioral patterns or habitat access in the long term, but short-term effects associated with displacement and reduction in habitat quantity may cause spatial and dietary resource competition for OC coho salmon.

The lower reach of Munsel Creek and the wetland-estuary complex at the confluence of Munsel Creek and the Siuslaw River provide rearing habitat for OC coho salmon. While feeding and sheltering opportunities exist downstream of the project site, displacement from upstream rearing habitats may cause a short term shift in intraspecific and interspecific competition with fishes in the wetland-estuary complex for spatial and dietary resources. Effects associated with shifts in intraspecific and interspecific competition are difficult to quantify, but NMFS expects that short term shifts (3-4 days) in spatial and dietary resource competition will not significantly modify or adversely affect individual OC coho salmon behavior, development, or survival.

1.5.1.3 Fish Entrapment and Entrainment

In-water work may adversely affect coho salmon. Installation of in-water work isolation structures may entrap coho salmon, possibly causing injury or death from asphyxiation, stress, or long term entrapment. Fish removal methods may include netting (block nets, dip nets, and seine nets), and/or electroshocking. Fish removal and handling of coho salmon may cause injury or death.

1.5.2 Effects on Critical Habitat

The NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water

quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Effects to critical habitat from these categories are included in the effects description expressed above in Effects of Proposed Action.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Other activities within the watershed have the potential to impact fish and habitat within the action area. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes.

Non-Federal activities within the action area are expected to increase with a projected 34 % increase in human population over the next 25 years in Oregon (ODAS 1999). Thus, NMFS assumes that future private and state actions will continue within the action area, increasing as population density climbs.

1.6 Conclusion

The NMFS has determined that, based on the available information, the Munsel Creek Water Pipeline Project is not likely to jeopardize the continued existence of OC coho salmon or result in the destruction or adverse modification of critical habitat. The NMFS used the best available scientific and commercial data to apply its jeopardy analysis, and analyzed the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. The proposed action is likely to cause minor, short-term degradation of anadromous salmonid habitat due to increases in sedimentation and turbidity. Fish may be killed or more likely temporarily displaced by in-water work activities for a brief period. This take will be limited due to the requirement to comply with the recommended in-water work window (July 1 to September 15). The NMFS expects overall that the project will maintain needed habitat elements over the long term (greater than 5 years).

1.7 Reinitiation of Consultation

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). The Corps must reinitiate consultation if: (1) If the amount or extent of incidental take is exceeded, (2) the action is modified in a way that causes an effect on the listed species that was not previously considered in the biological assessment and this Opinion, (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered, or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered species and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by NMFS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering. Harass is defined by NMFS as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the term and conditions of this Incidental Take Statement.

2.1 Amount or Extent of Take

The NMFS anticipates that the proposed action covered by this Opinion is reasonably certain to result in incidental take (lethal and non-lethal) of juvenile OC coho as a result of: 1) Increases in sedimentation and turbidity, 2) installation and removal of in-water work isolation structures, and 3) fish removal activities. Any take from water quality changes is likely to be non-lethal and largely unquantifiable. Take from work area isolation and fish removal may be either lethal or non-lethal. The extent of non-lethal take for this opinion is limited to take resulting from activities undertaken as described in this opinion that occurs in an area extending from 150 feet upstream of the proposed action to the confluence of Munsel Creek and the Siuslaw River, including the CMZ. Non-lethal take from fish removal shall not exceed 10 juvenile OC coho salmon.

Lethal take resulting from the capture or killing of listed salmonids is limited to activities described in this Opinion that occur in the in-water work zone during the in-water work period. Lethal take shall not exceed 10 juvenile OC coho salmon.

2.2 Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

The Corps shall:

1. Minimize the amount and extent of incidental take from construction activities within the proposed action area by ensuring that measures are taken to limit the duration and extent of in-water work, and to time such work when impacts to OC coho salmon are minimized.
2. Minimize the amount and extent of incidental take from construction activities in or near watercourses by ensuring that effective erosion and sedimentation control measures are

developed, implemented, and maintained to avoid or minimize the movement of soils and sediment both into and within watercourses and to stabilize bare soil over the short term and the long term.

3. Minimize the amount and extent of incidental take from construction activities in or near watercourses by ensuring that an effective spill, prevention, containment, and control plan is developed, implemented, and maintained to avoid or minimize point-source pollution both into and within watercourses over the short term and the long term.
4. Minimize the extent of impacts to riparian and in-stream habitats, or where impacts are unavoidable, replace or restore lost riparian or in-stream habitats.
5. Evaluate all fish removal and handling, spill containment, prevention and control plans, hazardous materials, and riparian remediation efforts both during and following construction.

2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions should be incorporated into construction contracts and subcontracts to ensure that the work is carried out in the manner prescribed. Implementation of the terms and conditions within this Opinion will further reduce the risk of adverse affects to fish and critical habitat. These terms and conditions are non-discretionary.

1. To Implement Reasonable and Prudent Measure #1 (in-water work), above, the Corps shall ensure that:
 - a. Upstream and downstream passage of juvenile coho is provided during all phases of the project. If the stream is diverted and the in-water work area is isolated from stream flows, migration access to upstream and downstream habitat for juvenile OC coho shall not exceed 5 days.
 - b. All work within the active channel of Munsel Creek is completed within the established in-water work period, July 1 to September 15. Any adjustments to the in-water work period must be approved by NMFS.
 - c. The alteration or disturbance of streambanks and existing riparian vegetation is minimized. Where bank work is necessary, bank protection measures shall be installed to maintain normal waterway configuration to the extent possible.
 - d. All water intakes used for the project, including pumps used to isolate an in-water work area, must have a fish screen installed, operated, and maintained according to NMFS' fish passage standards (available at <http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm>).

- e. All pump intakes are screened in accordance with NMFS' fish screen criteria (available at <http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm>).
- f. Capture and release. Before and intermittently during pumping to isolate an in-water work area, an attempt must be made to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.
 - 1) A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.
 - 2) If electrofishing equipment is used to capture fish, the capture team must comply with NMFS' electrofishing guidelines (<http://www.nwr.noaa.gov/1salmon/salaesa/pubs/electrog.pdf>).
 - 3) The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures. Complete transfers using a sanctuary net that holds water during transfer to prevent the added stress of an out-of-water transfer.
 - 4) Captured fish must be released as near as possible to capture sites.
 - 5) ESA-listed fish may not be transferred to anyone except NMFS personnel.
 - 6) Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.
 - 7) NMFS or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.
 - 8) A description of any capture and release effort will be included in a post project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality.
- g. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fisheries Service Law Enforcement Office (telephone 503-325-5934). Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured

endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed.

2. To implement Reasonable and Prudent Measure #2 (erosion control), the Corps shall ensure that:
 - a. An erosion and sedimentation control plan (ESCP) is prepared and fully implemented. The ESCP will outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures shall be sufficient to ensure compliance with applicable water quality standards and this Opinion. The ESCP shall be maintained on site and shall be available for review upon request. Erosion and sedimentation control measures may include (but not limited to) the following:
 - (1) Sediment detention measures such as placement of weed-free straw, silt fences, straw bale barriers, temporary seeding, sediment traps, erosion control blankets or heavy duty matting (e.g., jute), and construction of temporary settling basins where applicable.
 - b. Effective erosion control measures shall be in-place at all times during the contract. Applicable erosion control measures shall be installed prior to any on-the-ground construction activities. Erosion control structures will be maintained throughout the life of the contract, and removed upon completion of construction as appropriate.
 - c. Erosion control measures will be applied to all areas of bare soil within seven days of exposure within 150 feet of any natural waterbody. All other areas will be stabilized within 14 days of exposure.
 - d. All erosion control devices will be inspected throughout the construction period to ensure that they are working adequately. Should a control measure not function effectively, the control measure will be immediately repaired or replaced. Additional erosion controls will be installed as necessary.
 - e. In the event that soil erosion and sediment resulting from construction activities is not effectively controlled, the Corps will limit the amount of disturbed area to that which can be adequately controlled.
 - f. All equipment that is used for in-stream work will be cleaned prior any in-water work. All mechanized equipment shall work from top-of-bank. External oil and grease will be removed from excavator arms and buckets prior to use below top-of-bank.

- g. Materials removed during excavation shall only be placed in upland locations at least 25 feet from top-of-bank to ensure that excavated materials do not re-enter the active channel. Conservation of topsoil (removal, storage and reuse) is encouraged.
 - h. Untreated wash and rinse water will not be discharged into any natural waterbody. Discharge from any pumping will be into a discharge structure to reduce concentrated velocities and minimize scour and erosion.
 - i. Project actions meet or exceed all provisions of the Clean Water Act (40 CFR Subchapter D) and Oregon Department of Environmental Quality for the National Pollution Discharge Elimination System (NPDES) permit.
- 3. To implement Reasonable and Prudent Measure #3 (pollution control), the Corps shall ensure that:
 - a. The Contractor develops and implements a site-specific spill prevention, containment, and control plan (SPCCP), and is responsible for containment and removal of any toxicants released.
 - b. All spills are reported to NMFS.
 - (1) In the event of a hazardous materials or petrochemical spill, immediate action shall be taken to recovery toxic materials from further impacting aquatic or riparian resources.
 - (2) The in-water work area will have containment measures in place that minimize the potential of petrochemicals or hazardous materials from entering the river.
 - c. Refueling and hazardous materials.
 - (1) The refueling plans include measures to prevent direct discharge of petrochemicals into any natural waterbody.
 - (a) Refueling of all equipment takes place at least 300 feet from the active channel.
 - (b) No auxiliary fuel tanks are stored within 300 feet of the active channel.
 - (c) Water pumps will be set in a lined containment structure with 125% capacity to prevent overspill.

- d. No fresh concrete comes in contact with the active flowing channel for a minimum of 72 hours.

- 4. To Implement Reasonable and Prudent Measure #4 (riparian protection), the Corps shall ensure that:
 - a. Alteration of native vegetation is minimized. Where possible, native vegetation will be removed in a manner that ensures that roots are left intact. Alteration or disturbance of the streambanks shall be minimized.
 - b. All exposed areas will have a replanting plan using species native to the project area or region.
 - c. All initial plantings shall occur prior to April 15, 2003.
 - d. The mitigation sites are monitored for five years with a survival rate or plant cover of 80%.

- 5. To Implement Reasonable and Prudent Measure #5 (monitoring), the Corps shall ensure that:
 - a. Upon completion of construction, a summary of all monitoring data is provided to NMFS.
 - b. Post-construction monitoring reports describe the success and/or failure, and actions taken to correct failures of all BMPs (to include but not limited to: ESCP and SPCCP), confirmation of as-built, and documentation of planting success. These reports will be submitted as outlined below.
 - (1) Post-construction Report. The report on BMPs and as-built component of monitoring will be provided within 60 days following completion of the proposed action, but no later than October 31, 2002, and include a description of:
 - (a) Specific methods used to minimize increases in turbidity, to include monitoring data.
 - (b) Stream conditions before and following any wet excavation.

- (c) Extent of turbidity plumes, in terms of concentrations (ppm or NTUs), distances downstream from project site, durations, and frequencies of events.
 - (d) Any observed injury and/or mortality of fish resulting from project activities.
- (2) Planting Report. Following the completion of plantings associated with the streambank and adjacent riparian zone, annually provide NMFS with a report by December 31 describing the success of plantings required under Reasonable and Prudent Measure #4. The report should focus on actions taken to ensure that plantings were done correctly and success at meeting the objective of 80 percent or higher survival rate after three years, as well as indicate any replantings completed during the preceding 12-month period. The report shall include photo documentation. Once 80 percent or greater survival has been documented for three consecutive years, this reporting requirement may be discontinued.
 - (a) An annual report on the success of the re-vegetation sites are provided to NMFS. Monitoring reports shall be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch, Habitat Division
Attn: OSB2001-0201
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

3. MAGNUSON-STEVENSON ACT

3.1 Background

On August 20, 2001, NMFS received a letter from the Corps requesting Essential Fish Habitat (EFH) consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for the subject action. The objective of the EFH consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action. This consultation is undertaken pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR 600).

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and spawning, breeding, feeding, or growth to maturity covers a species' full life cycle (50 CFR 600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14

to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed action is detailed above in Section 1.2 of this document. For this consultation, the action area includes Munsel Creek 150 feet upstream of the proposed action, downstream to its confluence with the Sisley River and includes the CMZ. This area has been designated as EFH for various life stages of chinook salmon and coho salmon.

3.5 Effects of Proposed Action

As described in detail in Section 1.5 of this document, the proposed activities may result in detrimental short-term and long-term adverse effects to a variety of habitat features.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for Pacific salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the Corps, all Conservation Recommendations outlined above in Section 1.7 and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Consultation Renewal

The Corps must reinitiate EFH consultation with NMFS if either action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on the best scientific and commercial data available. This section identifies the data used in developing this Opinion.

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